
warp it AG
eCERT for SAP ERP



eCERT for SAP ERP

e-ARC utilizing SAP

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Speaker

- Werner Magerl
- Director of SAP projects
- 20 years of experience in Aerospace & Defence business

Company Facts – warp it AG

- warp it AG was founded in 2000 as a consulting company for Aerospace and Defense
- Over 15 years of experience in logistic processes
- Specialist in ATA SPEC2000 and ASD S2000M specifications
 - consulting chapter 1-4 as well as other chapters
 - co-operation with ATA working groups
 - ATA e-Business Forum participation
- Specializing in e-Business processes in A&D
- Specializing in integration of SPEC2000 into SAP ERP landscape
- SAP certified Partner „Powered by Netweaver“ since 2005



Agenda – eCERT for SAP ERP

- Industry Background
- Advantages of electronic ARC
- Industry standards
- Product overview
- General Architecture
- Inbound + Outbound process
- [Certificate App](#)
- Certificate Cockpit
- Live Demo

Industry background

ARC (Authorized Release Certificates), also known as Airworthiness Approval Tags are implemented and required by the Airline industry for the following reasons:

- Used by the manufacturer for conformity determination
- Prevent unapproved parts being used
- Identify parts and assure traceability

Currently implemented using paper forms!

- e-ARC is the electronic representation of authorized release certificates.
- Defined in ATA SPEC2000 chapter 16

Industry standards

The ATA SPEC2000 has two relevant chapters

- ATA Spec 2000, chapter 16 (Electronic Parts Certification Forms)
 - This standard represents e-ARC currently used by industry electronically. This standard was introduced by ATA to cover electronic part certification for the airline industry.

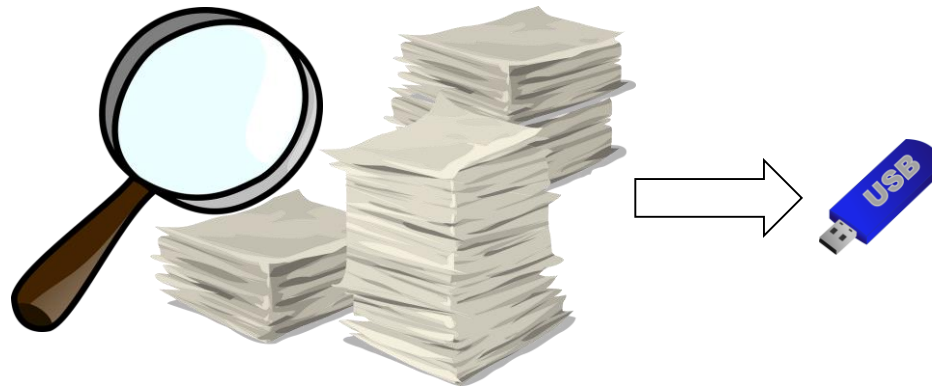
- ATA Spec 42 (Aviation Industry Standards for Digital Information Security)
 - The ATA standard for digital security utilizing PKI (Public Key Infrastructure) for determining the currency and validity of the message sender's digital certificate.

- Both standards are XML based

Advantages of electronic ARC

Implementing e-ARC using IT technologies offers numerous advantages:

- Higher reliability
- Security
- Authenticity
- Data consistency
- Cost reduction



Product Overview

- Data and interface functionality and eCERT cockpit integrated in SAP ERP
- User does not have to change tools and system
- Standard SAP ERP functionalities can be used

- Integration in SAP modules SD, MM, QM
 - Sales Order, Outbound Delivery, Transportation,
 - Purchase Order, Inbound Delivery
- Customizing
 - Can store certificates for each SAP document object (deliveries, inspection lots,...)
- Incoming and outgoing certificates can be stored and viewed

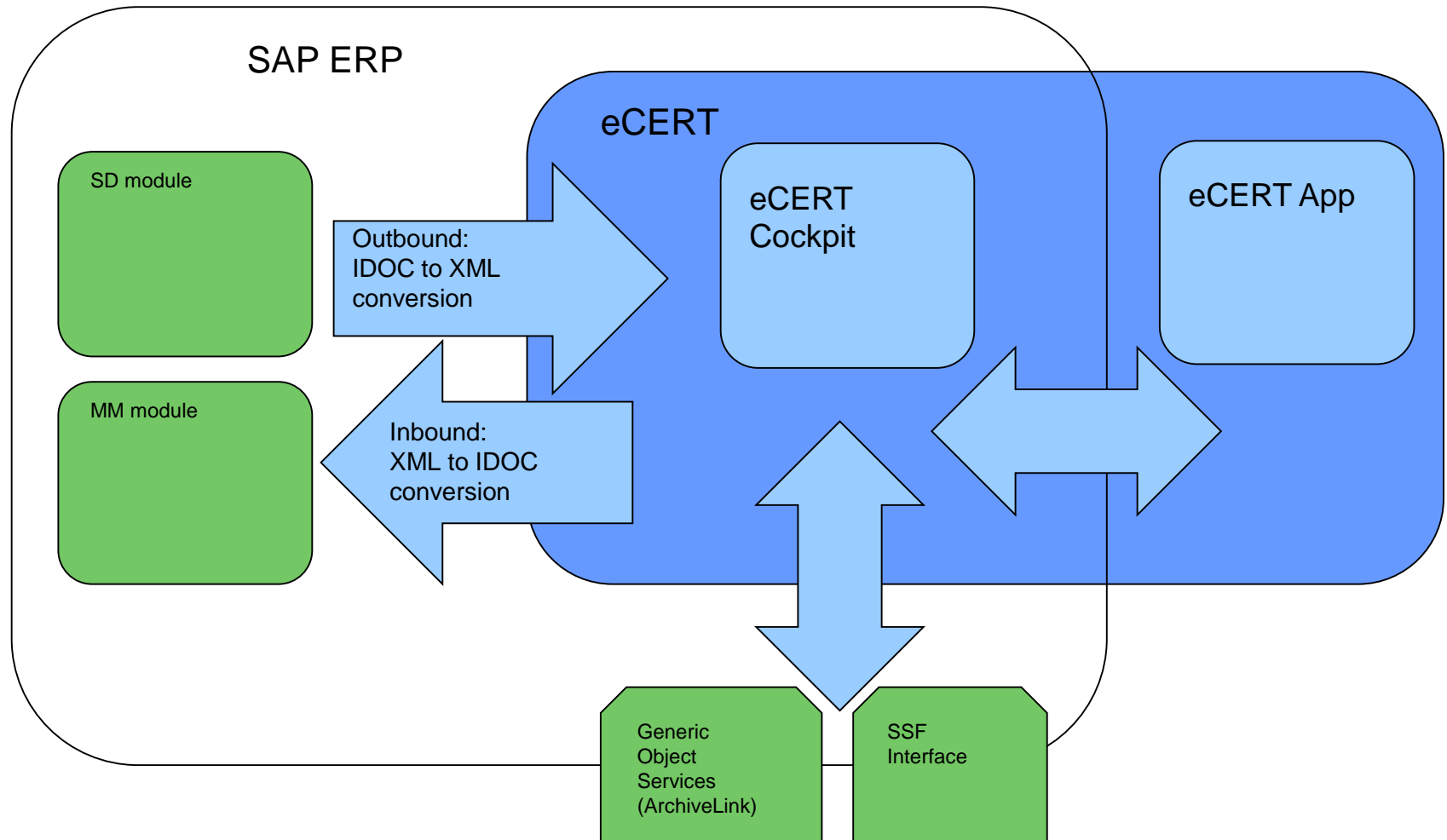
Product Overview

- Digital signature validation performed with SAP SSF functionality (SSF: Secure Store & Forward)
 - SAPSECULIB and STRUST store
 - Support 3rd Party products
 - Hardware or Software certificates
- SAP authorization concept
 - To identify logged in ERP user
- Rule based workflow ensures compliance with regulations
 - User must review the form before signing

General Architecture

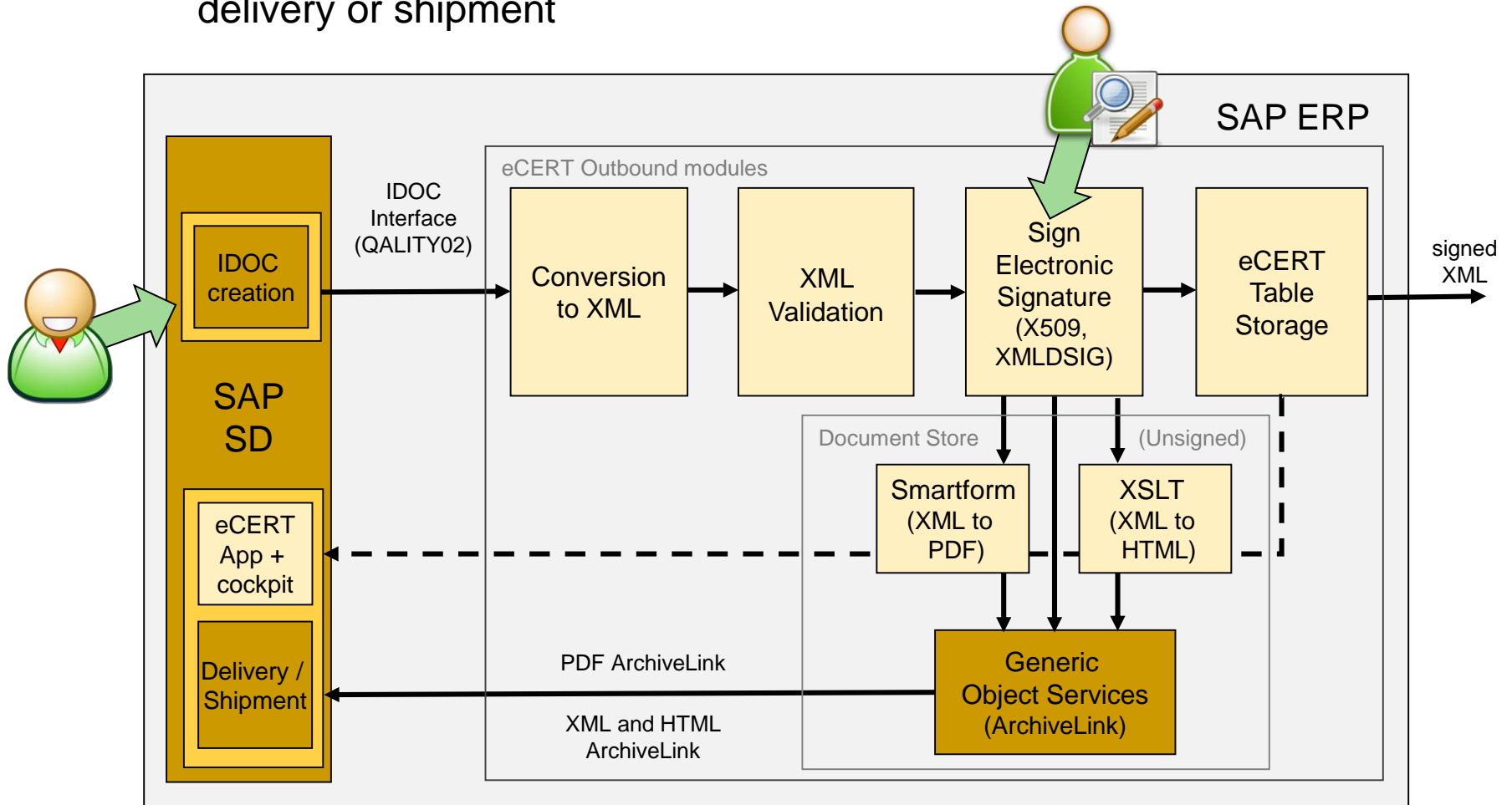
- The eCERT solution contains these main modules
 - Outbound modules for e.g. suppliers
(SAP QA-IDOC, XML conversion and preparation, process integration)
 - Inbound modules for e.g. airlines
(XML conversion, process integration, SAP QA-IDOC)
 - eCERT Cockpit
 - [eCERT App for mobile devices](#)

General Architecture



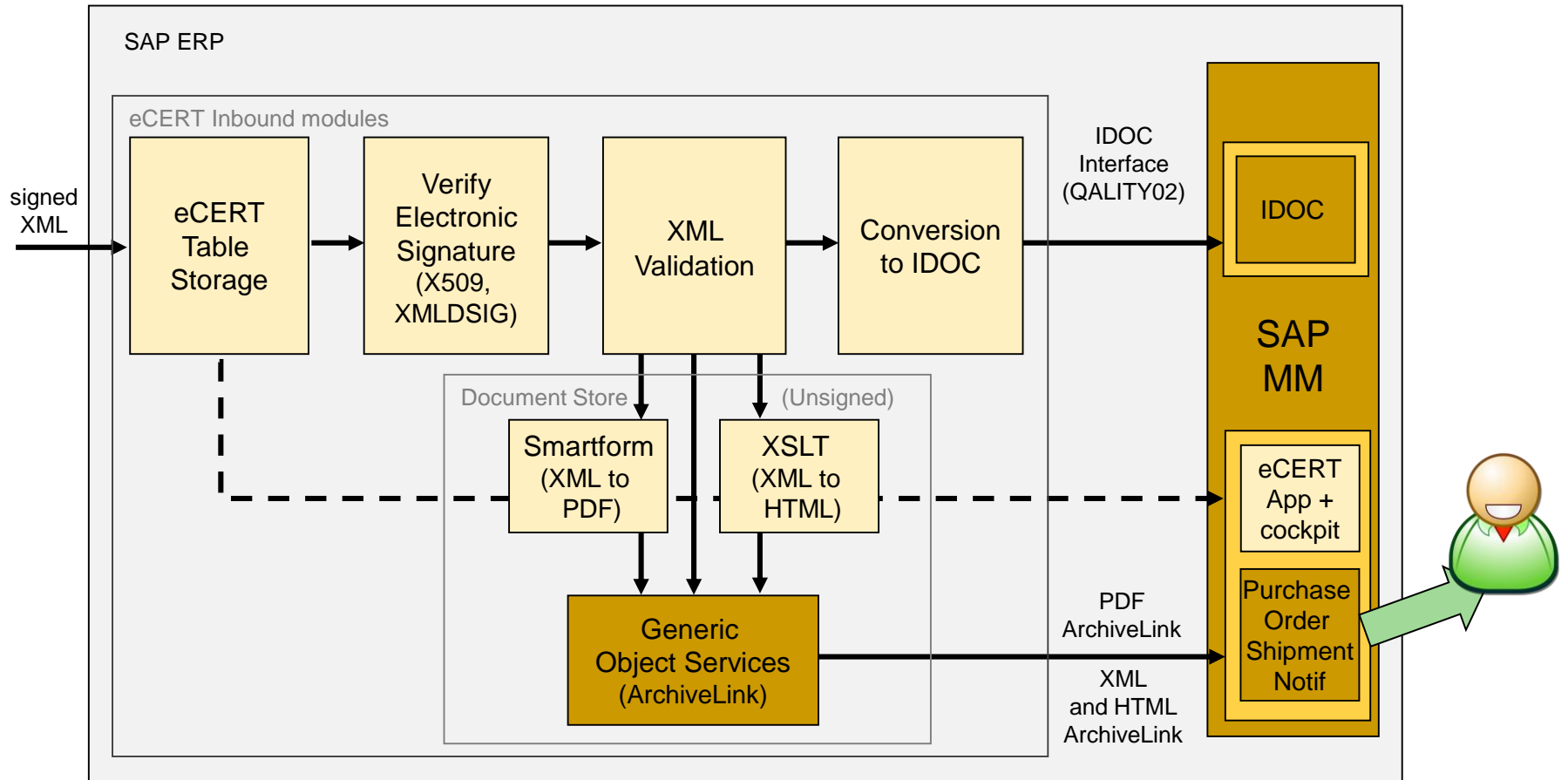
Outbound process

- The SAP SD module is customized to create the part certification during delivery or shipment



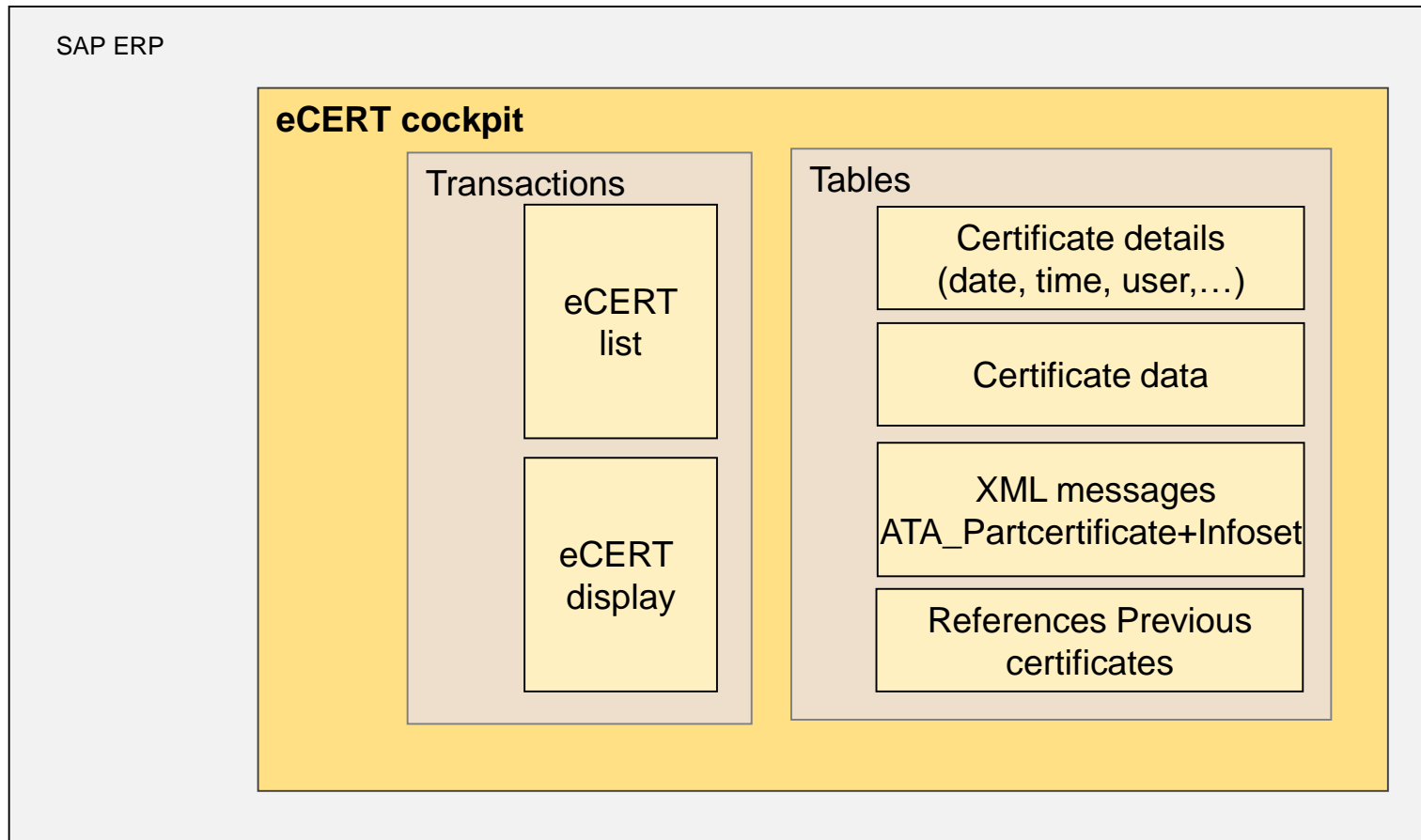
Inbound process

- The SAP MM module is customized to link the part certification into the purchase order and inbound delivery



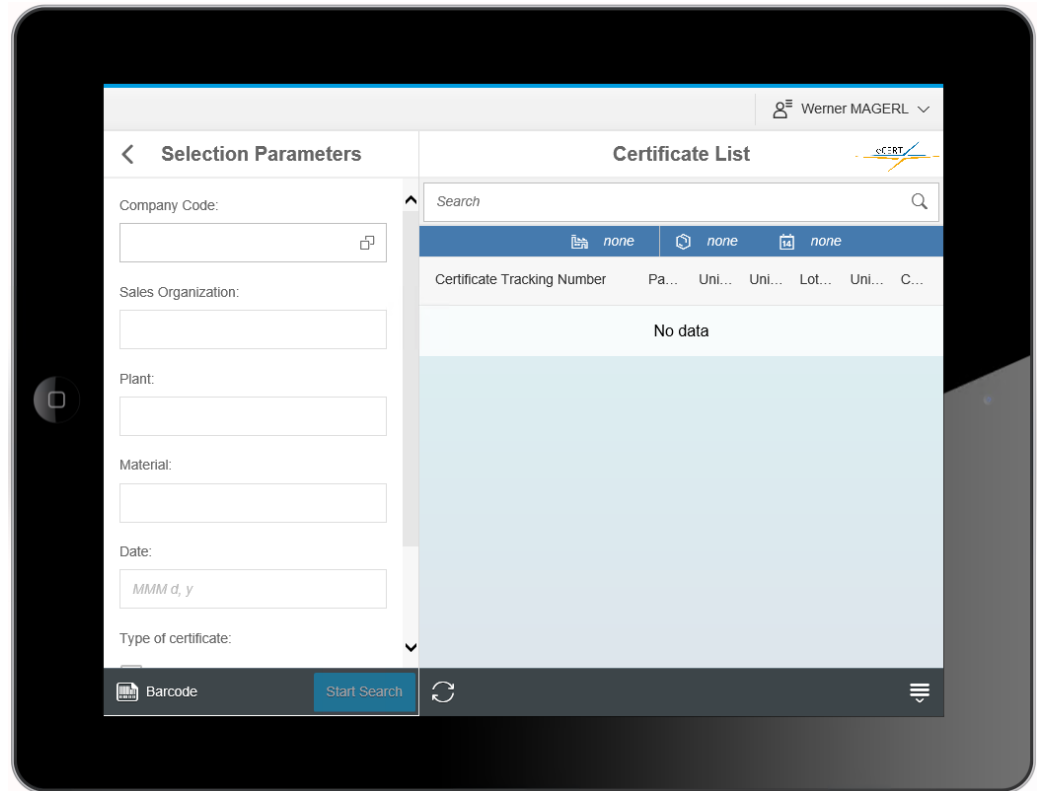
eCERT cockpit

- Main transaction

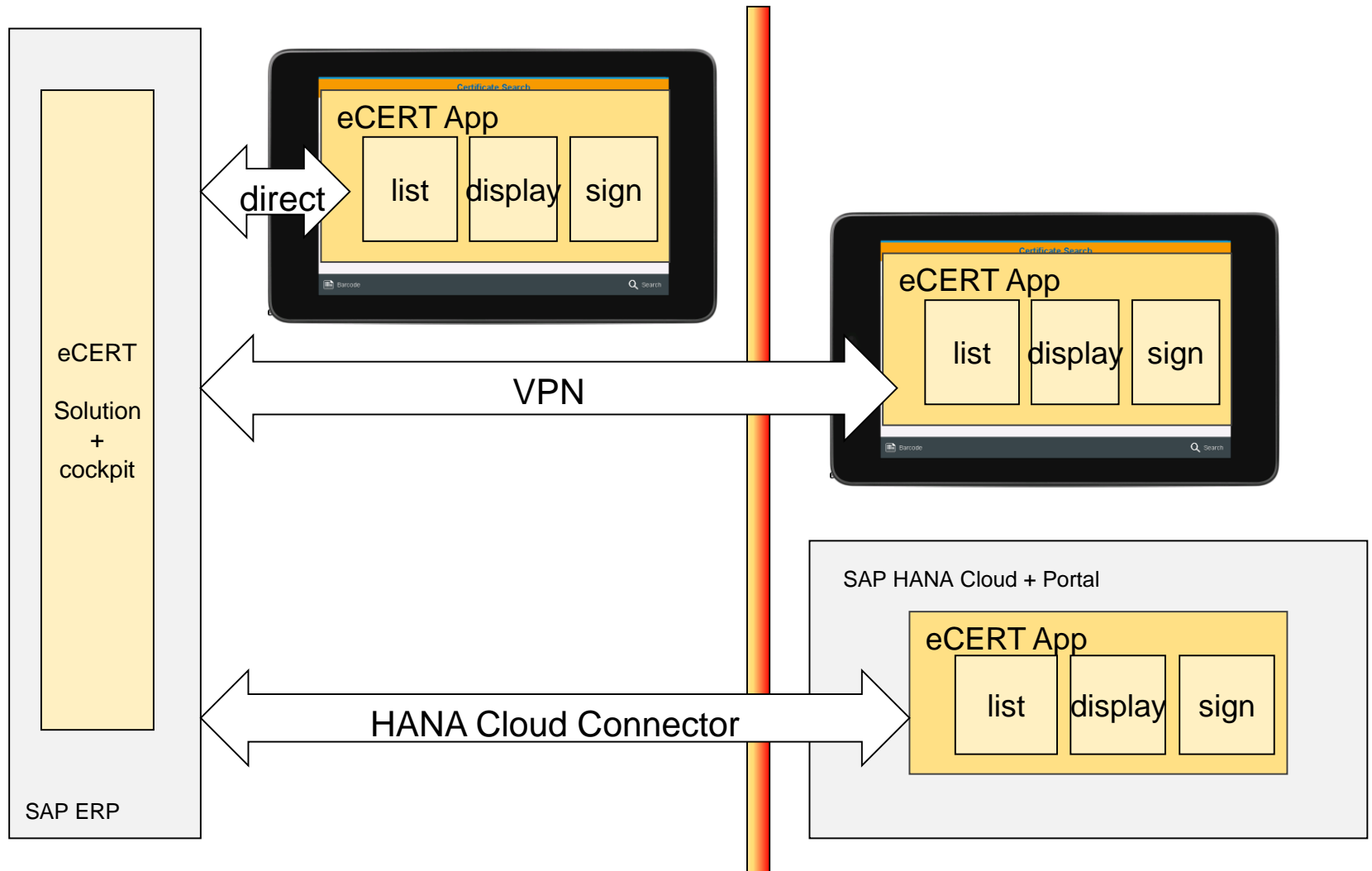


eCERT App

- **Mobile App for real paperless process**
- More mobility for QA user
- More mobile support for external services
- Check online at container
- Sign online at container
- ...



eCERT App



Live Demo

- SAP business documents and trigger from Shipment

Business partner 0000001321 warp it AG
Material P-103 Pump PRECISION 103

Document

Document	On	Quantity	Unit
Standard Order 0000013975 / 10	08.06.2017	1	PC
Delivery 0080016251 / 10	08.06.2017	1	PC
Shipment 0000001344 / 1	08.06.2017		

Shipment 0000001344

S...	Out...	Description	Medium	F...	Partner
00	ZPCF	Out. Part Cert.	EDI	SP	1310

Live Demo

■ SAP IDOC with extensions

The screenshot displays the SAP IDOC display interface. On the left, a tree view shows the IDoc structure for IDoc 0000000000957793. The 'Data records' folder is expanded, showing a list of segments. The segment 'E1EDK02 079' is selected and highlighted with a red box. To the right, the 'Technical short info' panel provides details for the selected segment, including direction, current status, basic type, extension, message type, partner number, partner type, and port. Below this, the 'Content of selected segment' table shows the data for the selected segment.

IDoc display	
▼ IDoc 0000000000957793	
• Control Rec.	
▼ Data records	Total number: 000035
• E1EDK03 010	Segment 000001
• E1EDK02 001	Segment 000002
• E1EDK02 018	Segment 000003
• E1EDK02 012	Segment 000004
• E1EDK02 079	Segment 000005
• E1EDK02 080	Segment 000006
• E1ADRM1 AG	Segment 000007
• E1ADRM1 LF	Segment 000008
• E1ADRM1 WE	Segment 000009
• E1ADRM1 ZBU	Segment 000010
• E1ADRM1 ZSO	Segment 000011
• E1ADRM1 ZWE	Segment 000012
▶ E1EDLIN	Segment 000013
▶ Status records	

Technical short info	
Direction	1 Outbox
Current status	03 ●
Basic type	QUALITY02
Extension	/WARPIT/QUALITY02
Message type	ZPCF
Partner No.	1310
Partn. Type	KU
Port	S2KEPCF

Content of selected segment	
Fld name	Fld cont.
QUALF	079
BELNR	0000001344
POSNR	0000
DATUM	20170613

Live Demo

■ eCERT COCKPIT

ECERT Certificate Cockpit

Export Certificates Delete Certificates Link Inbound

Current Message/Cert.

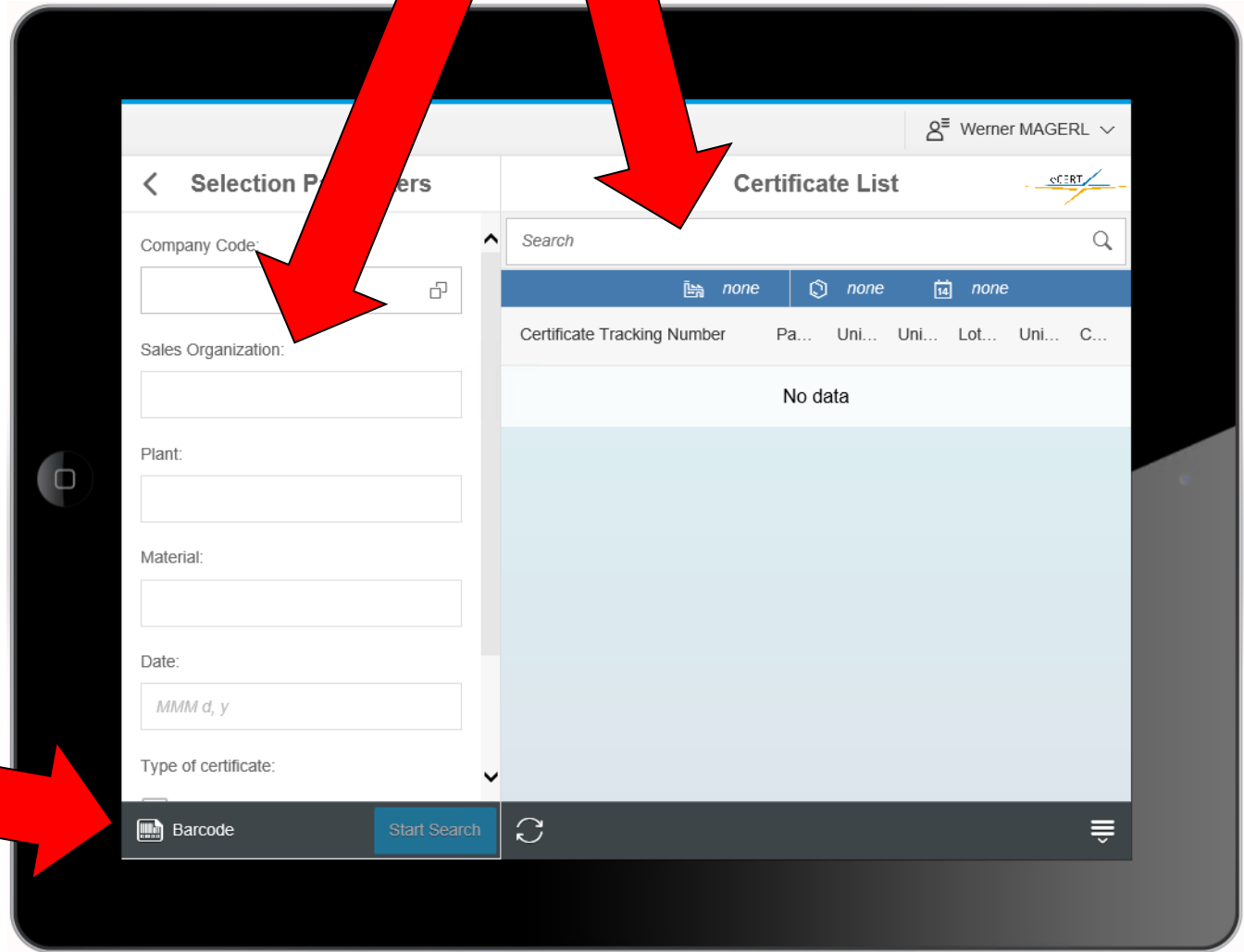
TDN	Type	Supplier	Customer	Custo...	CPO	Shipment N...	Partnumber	Serial number
INBTEST151029-000007	I	SPLTS		S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-115213	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-124519	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-125339	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-125736	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-125941	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-130114	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-130443	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-130531	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-144859	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-150809	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-153747	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-162301	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170608-111448	P	SPLTS	1321	S2KCI	CPO2706081	1344	P-103	SER12345

Live Demo

■ search

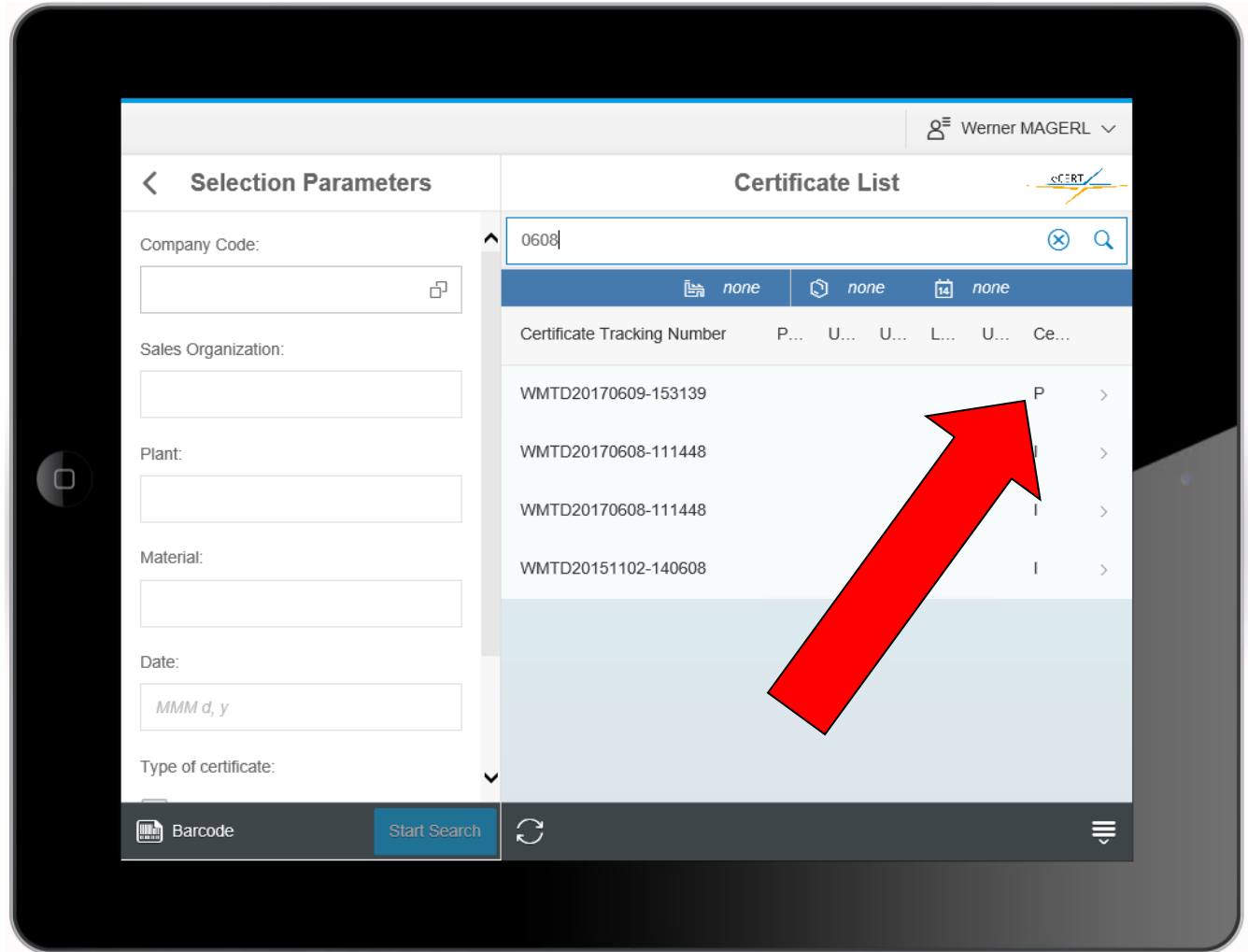
Manual search

Barcode search



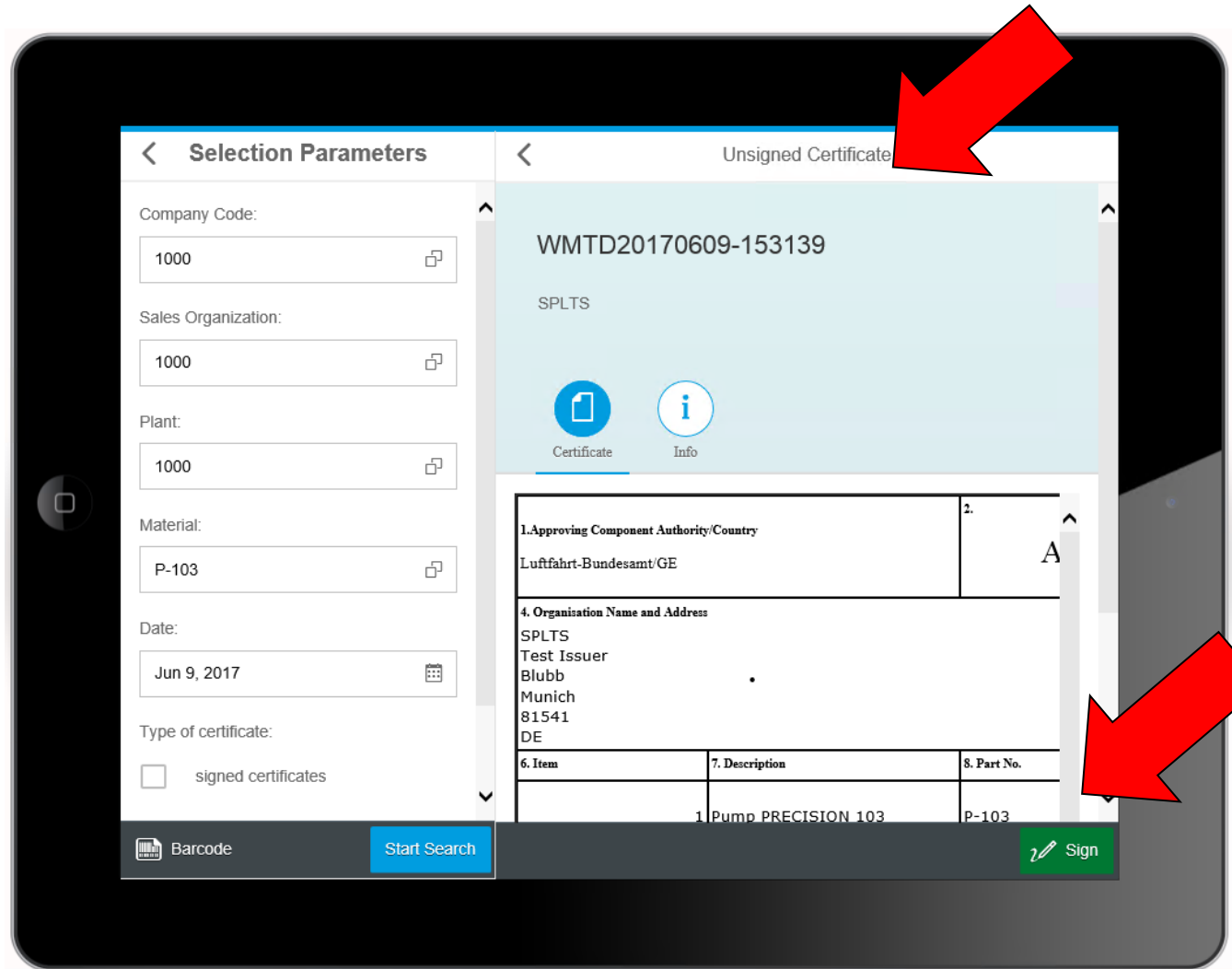
Live Demo

■ select



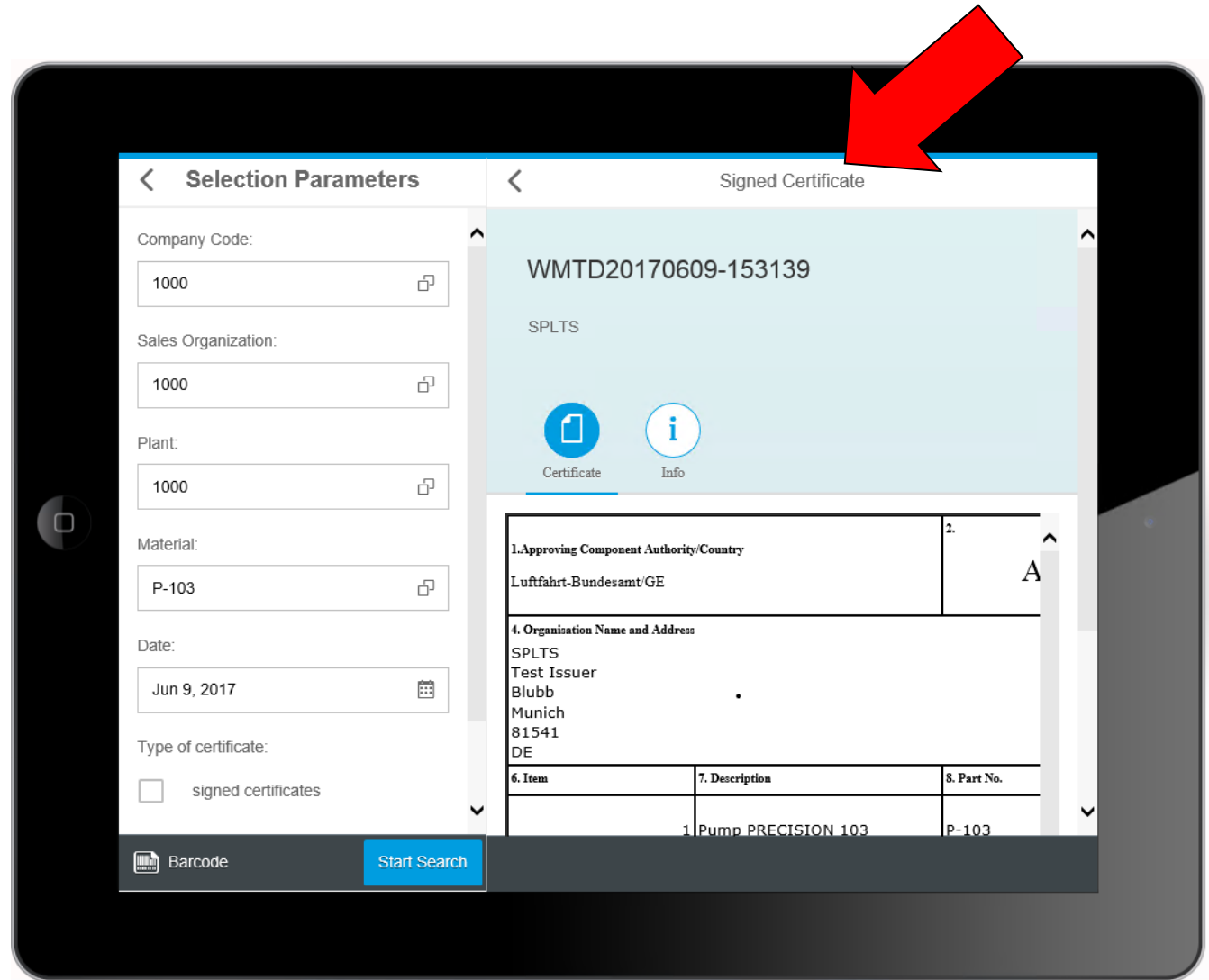
Live Demo

- verify and sign



Live Demo

- signed



Live Demo

■ eCERT COCKPIT step 1

ECERT Certificate Cockpit

Export Certificates Delete Certificates Link Inbound

Current Message/Cert.

TDN	Type	Supplier	Customer	Custo...	CPO	Shipment N...	Partnumber	Serial number
INBTEST151029-000007	I	SPLTS		S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-115213	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-124519	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-125339	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-125736	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-125941	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-130114	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-130443	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-130531	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-144859	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-150809	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-153747	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170421-162301	I	SPLTS	1321	S2KCI	4500017334	1307	P-103	SER12345
WMTD20170608-111448	P	SPLTS	1321	S2KCI	CPO2706081	1344	P-103	SER12345

Live Demo

■ eCERT DISPLAY

ECERT Detail screen

Sign Document Link Previous Sign and Export Download Certificate Print Certificate

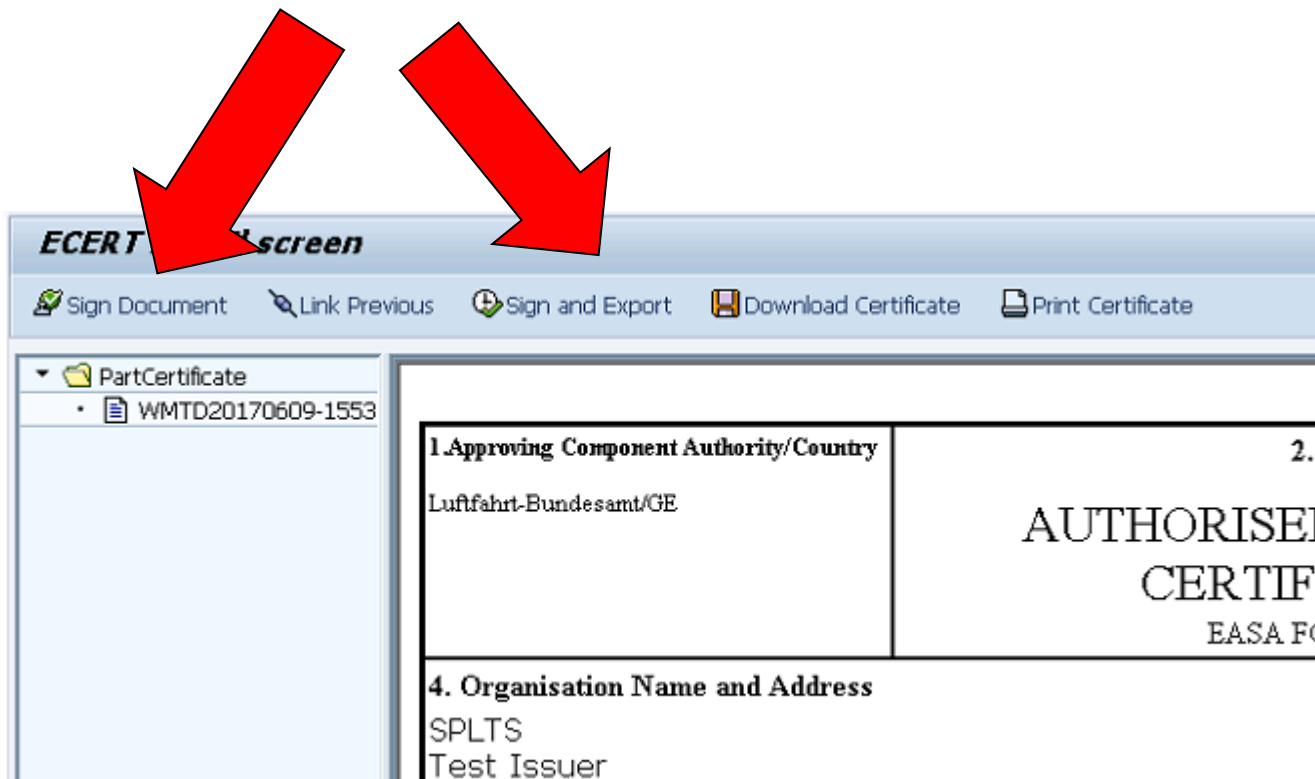
PartCe
W 0608-1114

Component Authority/Country t-Bundesamt/GE	2. AUTHORISED RELEASE CERTIFICATE EASA FORM 1	3. Form Tracking Number WMTD20170608-111448
4. Organisation Name and Address SPLTS Test Issuer Rubb	5. Work Order/Contract/Invoice Customer: S2KCI Order: CPO2706081 Ship Advice: 0000001344 Work Order: 00000	

```
<?xml version="1.0" encoding="utf-8" ?>
- <ATA_PartCertificationForm version="1.00" id="ID3">
- <Block2>
  <CET FVI="ISSUE WM">EASA Form 1</CET>
</Block2>
- <Block3>
  <TDN>WMTD20170608-111448</TDN>
</Block3>
```

Live Demo

■ Sign and Send



The screenshot shows the ECERT application interface. The title bar reads "ECERT screen". Below the title bar is a menu bar with the following options: "Sign Document", "Link Previous", "Sign and Export", "Download Certificate", and "Print Certificate". Two large red arrows point to the "Sign and Export" button. On the left side, there is a tree view showing a folder "PartCertificate" containing a document "WMTD20170609-1553". The main content area displays a certificate form with the following fields:

1. Approving Component Authority/Country Luftfahrt-Bundesamt/GE	2. AUTHORISEI CERTIF EASA FC
4. Organisation Name and Address SPLTS Test Issuer	

Live Demo

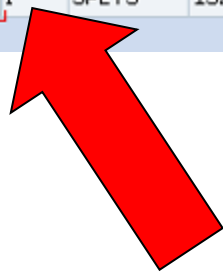
■ eCERT COCKPIT step 2

ECERT Certificate Cockpit

Export Certificates Delete Certificates Link Inbound

Current Message/Cert.

TDN	Type	Supplier	Customer	Custo...	CPO	Partnumber	Serial number
WMTD20170608-111448	I	SPLTS	1321	S2KCI	CPO2706081	P-103	SER12345
WMTD20170609-153139	I	SPLTS	1321	S2KCI	CPO2706081	P-103	SER12345
WMTD20170609-154838	I	SPLTS	1321	S2KCI	CPO2706081	P-103	SER12345
WMTD20170609-155337	I	SPLTS	1321	S2KCI	CPO2706081	P-103	SER12345



Live Demo

■ eCERT DISPLAY step 2

The screenshot displays the 'ECERT Detail screen' with a toolbar at the top containing 'Export Certificate', 'Download Certificate', 'Print Certificate', and 'Link Inbound'. On the left, a tree view shows 'InformationSet' expanded to 'WMTD20170609-1553'. A red arrow points from this tree view to the main content area. The main content area shows a certificate with the following details:

1. Approving Component Authority/Country Luftfahrt-Bundesamt/GE	2. AUTHORISED CERTIFIC EASA FORI
4. Organisation Name and Address SPLTS Test Issuer Ruhh	

Below the certificate details, a red arrow points to the XML data:

```
<?xml version="1.0" encoding="UTF-8" ?>  
- <ATA_InformationSet version="1.02" id="ID3">  
- <PartCertificationData>  
- <CurrentCertificate>  
- <ATA_PartCertificationForm id="ID3" version="1.00">
```

Example – ATA_InformationSet

```
<?xml version="1.0" encoding="utf-8"?>
<ATA_InformationSet xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="file:///D:/Warp/Produkte/Part%20Certification/A
TA/FlatSchema/ATA_PartCertificationForm_Flat.xsd" version="7283,00" id="ID"
xmlns:N1="http://www.w3.org/2000/09/xmlsig#">
  <PartCertificationData>
    <CurrentCertificate>
      <ATA_PartCertificationForm version="968,00" id="ID">
        <Block2>
          <CET FVI="string">JAA Form One</CET>
        </Block2>
        <Block3>
          <TDN>string</TDN>
        </Block3>
        <Block4>
          <IssuerDetail>
            <SPL>string</SPL>
            <WHO>string</WHO>
            <ADL>string</ADL>
            <CIY>string</CIY>
            <ZIP>string</ZIP>
            <CNT>string</CNT>
            <STP>string</STP>
            <CEN>string</CEN>
          </IssuerDetail>
          <RemotelIssuerDetail>
            <SPL>string</SPL>
            <WHO>string</WHO>
            <ADL>string</ADL>
            <CIY>string</CIY>
            <ZIP>string</ZIP>
            <CNT>string</CNT>
            <STP>string</STP>
            <RCN>string</RCN>
          </RemotelIssuerDetail>
        </Block4>
        <Block5>
          <CIC>string</CIC>
          <CPO>string</CPO>
          <PSN>string</PSN>
          <WON>string</WON>
          <MRN>string</MRN>
          <BOX>string</BOX>
          <CTN>string</CTN>
        </Block5>
        <Block6>
          <LIN>string</LIN>
        </Block6>
        <Block7>
          <PDT>string</PDT>
        </Block7>
        <Block8>
          <MFR>string</MFR>
          <PNR>string</PNR>
          <OPN>string</OPN>
        </Block8>
        <Block10>
          <QTY UNT="SF">7142</QTY>
        </Block10>
        <Block11>
          <UST>string</UST>
        </Block11>
        <Block12>
          <PSC>TESTED</PSC>
        </Block12>
      </ATA_PartCertificationForm>
    </CurrentCertificate>
  </PartCertificationData>
</ATA_InformationSet>
```

Example - Signature

```
<N1:Signature Id="ID">
  <N1:SignedInfo Id="ID">
    <N1:CanonicalizationMethod Algorithm="http://www.mywebsite.com"/>
    <N1:SignatureMethod Algorithm="http://www.mywebsite.com">
      <HMACOutputLength>3818</HMACOutputLength>
    </N1:SignatureMethod>
    <N1:Reference Id="ID" URI="http://www.mywebsite.com" Type="http://www.mywebsite.com">
      <N1:Transforms/>
      <N1:DigestMethod Algorithm="http://www.mywebsite.com"/>
      <N1:DigestValue>string</N1:DigestValue>
    </N1:Reference>
  </N1:SignedInfo>
  <N1:SignatureValue Id="ID">string</N1:SignatureValue>
  <N1:KeyInfo Id="ID">
    <N1:KeyName>string</N1:KeyName>
  </N1:KeyInfo>
  <N1:Object Id="ID" MimeType="string" Encoding="http://www.mywebsite.com"/>
</N1:Signature>
```

Q&A

Q&A

Contact

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